



UNITED STATES DEPARTMENT OF COMMERCE  
Bureau of the Census  
Washington, DC 20233-0001

## MASTER FILE

April 19, 1999

### DSSD CENSUS 2000 PROCEDURES AND OPERATIONS MEMORANDUM SERIES # H-1

MEMORANDUM FOR Brian Monaghan  
Lead Assistant Division Chief for Censuses  
Field Division

From: Howard Hogan *Howard Hogan*  
Chief, Decennial Statistical Studies Division

Prepared by: Christine Lynch  
Decennial Statistical Studies Division

Subject: Specifications for the Quality Assurance for Local Update of Census  
Addresses 1999 Reconciliation

#### I. INTRODUCTION

The Local Update of Census Addresses (LUCA) program allows local officials to improve accuracy and completeness of the Bureau of the Census address list. The LUCA verification operation is conducted to verify the Housing Units (HUs) in areas that were questioned during the LUCA program. Address list review listers canvass the areas in question to check addresses and determine the correct number of HUs in the area. In order to accomplish this task, the lyster performs the following: 1) Assigns action codes for every address on the address listing page, 2) Adds HUs that are not already on the listing page to the add page, 3) Updates the Assignment Area (AA) map whenever necessary and 4) Deletes addresses not found in the block.

#### II. PROGRAM OBJECTIVES

A. The Quality Assurance (QA) program has three basic objectives:

1. Prevention of errors due to lack of knowledge on the part of the lyster
2. Control for coverage and content errors
3. Promote continuous improvement of performance

B. The first objective is accomplished via an initial review of the lyster by the field supervisor. The second is achieved by identifying and correcting address areas with unacceptable levels of errors in a dependent review.

Structured feedback from the field supervisor to the lister will be used to accomplish the third objective. A Quality Information System will be developed and maintained for the tracking and documentation of the process.

### III. PERSONNEL AND TRAINING REQUIREMENTS

- A. Personnel performing QA activities should be knowledgeable of the process and able to perform canvassing duties with a high level of accuracy. All personnel should receive training on the scope and purpose of the QA program.

### IV. INITIAL OBSERVATION

#### A. Overview

An initial observation on each lister will be performed by the field supervisor to ensure that the lister can produce work according to the established procedures. This observation must take place during the lister's first three days on the job, while he/she is working on his/her first Field Assignment (FA). The observation will cover ten HUs. During the observation, the field supervisor will identify and correct critical errors, as defined below. The field supervisor will also discuss any other errors with the lister, but they will not be considered critical errors for QA purposes. The results of this observation will be documented on Form D-456.1, the Quality Assurance Observation Record, which is presented as Attachment A.

#### B. Sample

- 1. All (100 percent) listers must receive initial observation.

#### C. Definition of Errors

- 1. Lister did not attempt to speak to a resident or knowledgeable person to verify the listing page address
- 2. Incorrect action code
- 3. Failure to verify the map spot of a previously listed HU
- 4. Failure to list a new HU on the add page
- 5. Failure to map spot a new HU in the correct census block

6. Failure to record either a house number, street name or physical description for a new HU
7. Failure to add a missing street to the map, delete a non-existent street feature from the map, or correct any incorrect street names

D. Decision

1. The field supervisor who performs QA will make a quality decision based on the number of errors detected during the QA check. Use the table below to determine what actions to take following QA.

If the lister commits . . . .	Then. . .
0 critical errors.	Allow the lister to continue working on his/her own.
One or more critical errors	Retrain the lister on the correct procedure and observe the lister again until you believe that the lister understands the procedure before allowing her or him to work alone. Have the lister also recanvass all work done before the observation. However, if the lister commits any critical errors during the second observation, remove the lister from the operation and assign the FA to another lister.
One or more noncritical errors	Discuss the errors with the lister.

V. DEPENDENT VERIFICATION

A. Overview

Every third day after the initial observation, a dependent QA verification will be performed on a sample of the work and a decision will be made to accept or reject the FA, based on the number of errors in the sample. All errors identified will be corrected and documented on the QA Dependent Verification Record, Form D-456.2 located on Attachment B.

B. Sample

1. Selecting the sample

- a. The field supervisor will select two random AAs using Table 1 provided in Attachment C.
  - (1) Beginning in the upper left corner of Table 1, the field supervisor will choose the first random number and compare it to the number of completed AAs.
  - (2) If the random number from the table is greater than the number of AAs, the field supervisor will cross out the number and proceed to the next number on the table, otherwise, the field supervisor will circle the number.
  - (3) The circled number corresponds to the AA selected for QA. For example, if the selected number is 3, the third AA from the front of the address binder is selected for QA.
  - (4) The field supervisor will repeat this process to choose the second AA for sampling.
- b. For selected AAs containing more than six HUs, the field supervisor will select a random start within each AA using Attachment C, Table 2.
  - (1) Beginning in the upper left corner of Table 2, the field supervisor will choose the first random number and compare it to the line numbers in the selected AAs address listing pages.
  - (2) If the random number from the table is greater than the line numbers in the AAs address listing pages, the field supervisor will cross out the number and proceed to the next number in Table 2, otherwise, he/she will circle the number.
  - (3) The circled number corresponds to the starting line number in the address listing pages where the sample will begin. This starting line number will be called the designated HU.
  - (4) The field supervisor will repeat this process to choose the starting line number for the second AA.

c. For selected AAs containing six HUs or less:

(1) Recanvass the entire AA.

2. Cavassing the QA segments

a. From each designated HU, the field supervisor will canvass in a clockwise direction (always making right turns).

b. The field supervisor will canvass six consecutive HUs.

C. Definition of Errors

1. Incorrect physical address and/or mailing address, including the following:

a. Street/road name

b. Directional prefixes or suffixes

c. House number

d. Mailing address

2. Incorrect or missing action code

3. Failure to list a new HU on the add page

4. Failure to map spot a new HU

5. Failure to delete a map spot which corresponds to a deleted HU

6. Failure to add an missing street to the AA map

7. Failure to delete any street/road nam that no longer exists

D. Decision

The field supervisor who performs QA will make a quality decision based on the number of errors detected during the QA check. Use the table below to determine what actions to take following QA.

If the lister commits... .	Then... .
0 critical errors.	Accept the completed work in the FA and allow the lister to continue working on his/her own.
One or more critical errors and the lister <b>has not</b> received retraining.	Reject the entire FA and retrain the lister on the procedures done in error. Assign another lister to recanvass the entire FA.
One or more critical errors and the lister <b>has</b> received retraining.	Reject the entire FA and assign it to another lister to recanvass. Remove the lister from the operation.

## VI. FORMS

### A. Quality Assurance Observation Record

#### 1. Control Information

- a. Lister name
- b. Verifier name
- c. Date of verification
- d. Regional Census Office (RCC) code
- e. Early Opening Local Census Office (ELCO)

#### 2. Performance information

- a. Did the lister enter the correct action code for all HU?
- b. Did the lister make the necessary annotations on the address listing page when correcting a listing?
- c. Did the lister add HUs on the add page whenever necessary?
- d. Did the lister fill in the appropriate information on the add page for each HU?
- e. Did the lister make corrections and/or updates to the map whenever necessary?

#### 3. Decision information

- a. Number of HU observed
  - b. Number of errors
  - c. Action taken - a brief description of the feedback given to the lister
4. Submitting the form
- a. The ELCO will send the form to Jeffersonville. The address to which the form will be sent will be communicated to the field staff at a later date.
- B. Quality Assurance Dependent Verification Record
1. Control information
    - a. Lister name
    - b. Verifier name
    - c. Date of verification
    - d. RCC code
    - e. ELCO code
  2. HU information
    - a. AA number - Record the AA number of the HU being checked.
    - b. Number of HUs in AA - Record the total number of HU in the AA containing the HU being checked.
    - c. Line number - Record the line number, from the listing page or the add page, of the HU being checked (note: a HU add that was missed by the original lister will not have an associated line number.)
    - d. HU missing from address binder - Mark column (a) if a HU that appears on the ground is not listed in the address binder.
    - e. Incorrect physical address and/or mailing address - Mark column (b) if the physical and or mailing address is incorrect in the binder.
    - f. Incorrect or missing action code - Mark column (c) if the action code is missing or incorrect in the binder.

- g. Feature missing from AA map - Mark column (d) if a HU or other map feature that exists on the ground does not appear on the map.
- h. Nonexistent feature on AA map - mark column (e) if a HU or other feature is marked on the map but does not exist on the ground.
- i. Incorrect AA map feature - mark column (f) if a map feature is incorrect on the AA map.
- j. HUs in error - enter the number 1 if one or more of columns (a) - (f) are marked, otherwise enter the number 0.

### 3. Decision information

- a. Totals - Record the sum of the column for each error type.
- b. Total number of HU observed - Record the number of HU observed.
- c. Total number of HUs in error - Copy the sum from the HUs in error column.
- d. Quality decision - Circle the word *Pass* if the total number of HUs in error is the number 0 otherwise circle the word *Fail*.

### 4. Submitting the form

- a. The ELCO will send the form to Jeffersonville. The address to which the form will be sent will be communicated to the field staff at a later date.

## VII. CONTACTS

- A. Questions regarding this document should be directed to Christine Lynch on (301) 457-2986, or Jimmie Scott on (301) 457-4210.

## Attachments

cc: DSSD CENSUS 2000 OPERATIONS AND PROCEDURES MEMORANDUM SERIES  
DISTRIBUTION LIST  
Rebecca Chilson (DSSD)  
Joseph Conklin        "  
Kevin Haley        "  
Carrie Johanson        "  
Christine Lynch        "

**LUCA 1999 FIELD VERIFICATION**  
**Quality Assurance Observation Record**  
**United States Census 2000**

Lister Name	Verifier Name	Date	RCC Code	ELCO Code
<b>Initial Observation</b> the lister did not:				
<p>a. Enter the correct action code for all HU in Column (6) on the Address Listing Page.</p>				
<p>b. Make the necessary annotations on the Address Listing Page when correcting a listing.</p>				
<p>c. Add housing units on the Add Page whenever necessary.</p>				
<p>d. Fill the appropriate information on the Add Page for each housing unit.</p>				
<p>e. Make corrections and/or updates to the map whenever necessary.</p>				
<b>Number of Units Observed</b>		<b>Total Number of Tallies</b>		
→				
<b>Action Taken:</b>         				

**LUCA 1999 FIELD VERIFICATION**  
**Quality Assurance Dependent Verification Record**  
United States Census 2000

Lister Name		Verifier Name		Date	RCC Code	ELCO Code	
AA Number	Number of HUs in AA	HU Missing from Address Binder (a)	Incorrect Physical Address and/or Mailing Address (b)	Incorrect or Missing Action Code (c)	Nonexistent Feature on AA Map (d)	Incorrect AA Map Feature (e)	
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
<b>Totals</b> 		Total No. of HUs Observed =		Total no. of HUs in error (last column) = If 0, circle "Pass", otherwise circle "Fail"		PASS FAIL	

## Table 1: AAs

86	95	45	29	10	48	95	2	2	5	76	40	65	82	96	28	65	41	35	6
80	69	14	99	24	17	88	17	11	28	4	74	31	4	15	80	14	29	49	59
28	16	83	100	66	72	56	43	29	13	26	58	46	15	34	86	99	58	30	27
69	2	15	11	30	13	41	4	31	33	81	83	75	100	69	98	16	17	67	47
95	66	70	47	20	12	73	87	10	82	83	68	48	64	7	39	67	24	8	37
63	70	37	54	16	44	56	58	17	73	86	32	74	17	62	81	17	42	69	47
87	10	4	22	23	43	2	15	4	63	86	96	2	12	21	23	51	92	88	75
86	68	85	85	90	24	66	33	65	21	61	21	50	25	11	75	30	16	86	16
19	87	59	34	30	44	4	47	95	58	47	19	34	58	75	58	55	36	66	41
9	46	94	100	99	51	12	27	95	85	56	60	79	78	21	36	71	37	69	99
24	10	85	2	75	69	50	88	77	64	47	46	95	59	37	41	16	97	60	66
6	12	30	67	50	13	98	50	88	58	48	56	11	24	72	94	3	94	37	62
96	37	100	12	82	9	17	96	85	53	37	85	57	45	47	75	21	57	9	70
24	15	91	84	91	92	27	70	87	33	57	77	100	35	91	96	26	94	80	48
61	78	51	26	67	48	66	25	80	16	46	91	46	78	63	22	43	60	77	3
87	8	27	35	18	48	25	12	3	53	30	14	89	72	16	21	14	11	26	53
90	97	44	82	95	13	29	61	36	13	40	55	31	66	21	22	2	20	25	6
31	42	12	14	97	7	32	68	49	25	27	26	5	45	72	41	10	90	4	70
12	68	78	5	66	67	57	6	74	49	32	54	91	74	38	38	61	43	55	51
56	18	76	51	43	5	77	51	68	24	99	69	25	54	12	40	47	23	2	30
11	26	11	93	89	12	35	73	19	16	84	84	54	81	53	52	35	65	30	20
9	77	83	64	24	77	75	36	56	33	19	13	9	21	90	8	41	8	98	62
75	90	53	87	36	6	95	47	63	88	3	62	82	38	64	20	15	57	17	66
39	69	12	59	87	61	50	61	55	74	32	86	65	56	26	87	74	53	17	94
81	78	96	30	77	96	14	84	80	64	91	87	83	18	3	75	3	93	58	87
19	40	99	14	53	95	22	13	7	97	18	4	74	7	83	48	68	51	70	1
77	30	8	28	95	88	33	77	3	3	53	99	98	32	29	15	34	41	35	16
77	40	19	19	33	74	96	1	10	3	8	30	23	73	14	29	66	24	36	99
6	85	44	7	72	40	9	12	31	54	13	84	63	11	86	48	52	33	74	72
6	64	57	8	91	43	21	41	95	90	83	74	30	97	71	87	7	47	43	80
95	45	22	47	41	32	97	28	93	61	96	63	54	95	20	84	98	66	93	50
81	94	28	18	11	60	56	29	86	85	28	77	67	28	75	97	94	92	87	51
78	58	98	47	29	93	95	77	89	1	76	39	5	13	32	70	64	79	1	36
32	17	11	94	29	27	46	83	20	10	37	52	12	26	42	61	31	99	70	61
48	40	17	58	82	90	78	4	79	78	20	31	31	59	84	95	54	70	91	91
64	15	13	24	45	46	52	40	67	82	58	88	80	2	98	45	60	24	45	10
35	25	79	41	70	3	97	32	8	12	77	21	85	61	16	16	60	10	39	85
31	21	64	31	20	60	50	77	8	84	25	72	54	44	64	99	11	76	61	60
83	36	37	20	50	99	33	80	67	97	45	58	24	5	93	85	47	37	85	87
9	83	61	98	12	11	25	31	64	13	73	74	33	75	64	63	7	75	56	5
23	47	8	59	10	52	53	53	31	77	46	22	63	76	68	37	46	42	67	14
34	9	34	15	7	52	41	67	24	35	58	52	48	11	45	17	54	88	8	96
57	30	41	64	44	25	2	1	59	75	23	92	40	38	77	30	21	20	89	12
2	44	36	48	25	4	20	60	96	52	23	16	17	64	36	16	56	1	96	22

Table 2: HUs

6	13	13	7	16	8	7	19	10	1	14	3	6	14	3	1	13	12	10	15	20	13	3
11	13	5	15	9	11	7	2	2	2	16	12	6	3	7	13	3	5	8	20	20	11	13
9	16	13	18	8	7	17	17	18	20	12	11	8	1	12	6	11	5	20	10	9	5	11
8	16	8	2	2	7	20	10	5	12	14	12	16	6	14	17	1	4	13	5	11	4	15
17	6	14	1	16	6	12	13	20	9	3	15	11	9	15	10	4	7	19	6	16	18	17
6	4	19	7	13	19	12	7	7	8	7	20	10	9	13	15	15	17	13	5	10	12	13
1	5	10	5	4	18	17	4	11	8	12	7	14	4	2	8	8	7	10	15	8	7	14
15	9	1	2	2	18	18	8	14	2	5	6	17	10	6	7	19	1	7	4	11	11	2
8	17	12	1	13	7	1	9	2	6	16	6	14	6	5	8	14	4	2	18	16	16	12
15	17	16	12	3	1	9	8	12	9	15	16	11	10	6	16	13	13	19	17	17	10	20
10	3	12	15	12	14	8	7	9	1	6	18	12	7	7	10	6	7	7	4	14	8	11
16	3	2	15	14	18	6	14	16	2	6	8	14	13	3	18	6	9	20	11	12	13	15
12	4	6	19	16	6	16	5	8	2	8	12	11	4	9	13	11	10	9	10	17	12	19
16	5	2	14	8	15	18	8	13	1	11	7	16	4	16	5	18	6	5	4	3	17	3
15	4	10	18	4	12	16	13	10	13	9	1	19	20	15	2	2	2	7	13	11	16	3
4	2	17	3	12	11	16	9	6	20	1	16	14	5	7	20	18	10	1	20	19	17	18
13	19	3	11	13	7	4	20	15	16	5	19	15	17	1	15	12	8	19	17	4	5	2
15	1	9	8	12	1	2	15	17	18	13	2	1	14	2	20	16	5	1	7	13	20	12
2	8	18	2	10	3	17	2	10	15	1	7	9	1	10	14	17	8	1	14	16	1	15
8	10	20	4	8	13	18	17	5	9	3	18	10	17	8	6	8	2	13	10	11	1	19
1	4	18	12	10	16	20	16	13	8	20	18	4	3	7	18	7	5	10	8	18	20	4
1	17	19	1	5	6	2	18	18	10	8	4	14	16	10	7	3	17	2	16	3	18	1
16	1	5	18	9	16	14	6	15	11	8	1	19	13	4	10	5	3	3	5	7	10	3
17	7	12	12	20	6	15	10	3	8	10	2	9	4	3	7	16	2	20	19	2	3	19
9	4	4	20	3	17	2	12	14	10	13	8	6	9	19	5	5	11	5	15	18	17	16
3	2	11	2	1	4	5	9	19	11	18	17	13	11	12	10	18	14	6	13	17	15	8
17	7	16	18	15	19	6	4	19	5	15	9	11	1	20	8	20	9	19	6	15	9	4
15	16	9	5	18	11	14	6	6	11	14	12	16	3	2	15	11	3	8	18	17	1	10
8	8	3	20	3	20	3	14	9	4	6	1	8	4	18	18	15	7	16	13	8	12	8
15	18	8	17	18	4	5	1	19	13	5	10	13	16	13	20	12	11	7	20	7	4	12
11	1	5	20	20	18	8	18	6	16	19	3	17	8	17	18	19	9	18	5	3	6	11
15	3	8	14	1	11	20	6	13	6	20	15	6	20	20	16	4	6	7	7	1	1	11
2	5	16	13	19	14	3	20	6	10	4	3	13	16	18	20	4	5	7	8	3	20	19
18	2	18	19	1	5	17	16	3	13	5	17	2	11	20	19	16	10	3	2	8	6	13
10	19	12	20	10	17	14	13	7	9	14	11	10	19	6	18	11	15	5	18	20	5	7
2	10	11	2	9	12	7	9	19	5	10	8	5	10	17	3	8	10	5	19	14	16	11
10	16	19	2	19	14	16	13	17	15	3	4	15	3	20	9	8	10	6	19	6	15	8
5	8	6	6	11	1	10	4	11	14	2	10	17	2	19	14	16	19	2	5	18	1	3
4	15	20	13	18	10	2	7	11	9	10	13	8	20	18	10	13	7	12	14	3	19	10
9	13	13	4	14	13	18	13	1	19	15	18	18	15	14	9	18	17	13	16	10	5	1
4	6	10	7	11	17	3	16	1	17	10	14	3	5	1	12	6	10	14	14	16	19	19
15	1	6	20	4	16	8	1	11	16	14	4	2	18	7	3	17	2	19	6	9	6	5
3	2	14	2	5	11	16	13	2	3	15	2	9	4	15	10	6	13	12	2	13	16	15
3	20	19	2	18	19	6	14	12	15	1	18	6	7	5	2	4	6	3	8	10	7	17
12	16	16	9	5	11	1	8	3	12	6	16	6	6	5	14	5	19	3	15	11	12	6